CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2008-0130

AMENDING WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2006-0121
FOR
THE RUMSEY BAND OF WINTUN INDIANS
YOCHA DE HE GOLF CLUB WATER RECLAMATION PROJECT
YOLO COUNTY

The California Regional Water Quality Control Board, Central Valley Region (hereafter Regional Water Board), finds:

1. On 26 October 2006, the Regional Water Board adopted Waste Discharge Requirements (WDRs) Order No. R5-2006-0121, prescribing requirements for the Yocha De He Golf Club Water Reclamation Project in Yolo County.

2. The Rumsey Band of Wintun Indians (hereafter "Discharger") owns and operates a wastewater treatment facility (WWTF) that serves the Cache Creek Casino Resort in western Yolo County. The resort includes a golf course, clubhouse, and ancillary facilities known as the Yocha De He Golf Club, and the Discharger uses reclaimed tertiary disinfected wastewater to irrigate the golf course.

3. The WWTF and part of the golf course are on land held in trust for the Discharger by the United States Bureau of Indian Affairs ("trust land"), but the clubhouse, ancillary facilities, and portions of the golf course are on land owned in fee simple by the Discharger ("fee land"). The WWTF and discharges of waste to trust land are regulated by the United States Environmental Protection Agency (USEPA) and are not subject to regulation by the Regional Water Board. However, the Regional Water Board has the authority to enforce applicable laws, regulations, and policies with respect to discharges that occur outside of trust land, and with respect to water quality degradation or pollution that may originate on trust land, but is detectable outside the confines of trust land.

4. The WWTF design flow is 225,000 gallons per day (gpd) as an average daily flow. A microfiltration membrane bioreactor (MBR) system provides tertiary treatment, and the effluent is disinfected with sodium hypochlorite and then stored or transferred for land disposal on trust land and recycling at the casino complex and the golf course.

5. The golf course is along the western bank of Cache Creek. The southern portion of the golf course and a geomembrane-lined irrigation storage pond are on trust land. The northern portion of the golf course and the driving range are on fee land.

6. The RWD estimated that reclaimed water would supply approximately 44 percent of the total golf course irrigation demand, and supplemental irrigation water is pumped from Cache Creek when available. Limited salinity data for the Cache Creek water supply from the RWD are tabulated below.

Supplemental Irrigation Water

	Analytical Result	
Constituent	May 2006	June 2006
Total Hardness (mg/L)	234	165
Electrical Conductivity (mg/L)	550	380
Total Dissolved Solids (mg/L)	320	210
Sodium (mg/L)	30	20
Chloride (mg/L)	32	19

7. The potable water supply for the casino complex is groundwater. This water supply was not characterized for the RWD, but the RWD states that the water is very hard. The Discharger uses an ion exchange water softening system for the casino complex water supply. Consequently, the WWTF effluent has high concentrations of electrical conductivity, total dissolved solids, sodium, and chloride. Effluent salinity data provided in the RWD are tabulated below:

Treated Effluent (as of 2006)

Constituent	Number of Samples	Average Result
Electrical conductivity (umhos/cm)	1	2,200
Total Dissolved Solids (mg/L)	29	1,230
Sodium (mg/L)	1	430
Chloride (mg/L)	29	440

8. Three groundwater monitoring wells were installed to monitor groundwater beneath the former spray fields that were on the trust land portion of the golf course. Groundwater at the golf course is about 21 feet below the surrounding grade with little seasonal variability in elevation. The groundwater flow direction at the golf course site is generally eastward towards Cache Creek. Pre-discharge groundwater salinity data presented in the RWD are summarized below. The terms cross gradient and downgradient relate to well locations with respect to wastewater spray disposal areas that were on the golf course site prior to 2005, not the golf course.

	Concentration Range		
	Cross Gradient Wells		Downgradient Well
Constituent/Parameter	MW-3	MW-5	MW-4
Total hardness, mg/L	750 to 890	290 to 400	270 to 420
Electrical conductivity, umhos/cm	1,700 to 2,400	760 to 880	710 to 920
Total dissolved solids, mg/L	1,400 to 1,600	550 to 640	450 to 750
Sodium, mg/L	130 to 230	30 to 140	76 to 130
Chloride, mg/L	160 to 240	9 to 52	44 to 140

These data indicate that pre-discharge groundwater quality beneath the golf course may have exceeded applicable water quality limits for electrical conductivity, total dissolved solids, chloride, and sodium. The difference between EC and TDS results for MW-3 and the other two wells appears to be due primarily to the high sulfate, bicarbonate alkalinity, hardness, sodium, and chloride. With the exception of nitrate, the data presented in the RWD indicate that the former spray fields did not degrade groundwater quality. This may be partly due to the influence of fresh water infiltrating the shallow groundwater zone from Cache Creek during high creek flows.

9. Despite the dilution with Cache Creek water, the discharge of recycled water to the golf course poses a threat to groundwater quality based on the high salinity of the treated effluent relative to underlying groundwater.

10. The limited groundwater quality information included in the RWD was not sufficient to determine final groundwater limitations for Order No R5-2006-0121. Therefore, the WDRs include interim groundwater limitations for typical domestic wastewater constituents. The interim groundwater limitation for each constituent was selected in accordance with the most stringent interpretation of the narrative limits set forth in the Basin Plan. The groundwater limitations state, in part:

F. Groundwater Limitations

1. Release of waste constituents from the golf course shall not cause groundwater under and beyond that area, as determined by an approved well monitoring network, to:

a. Contain any of the following constituents in concentrations greater than those listed below or greater than ambient background groundwater quality, whichever is greater:

Constituent	*Units*	*Limitation*
Chloride	*mg/L*	*106*
Sodium	*mg/L*	*69*
Total Dissolved Solids	*mg/L*	*450*

11. The WDRs require groundwater monitoring and a statistical determination of background groundwater quality by 30 June 2009. If the statistically determined background groundwater concentration for any waste constituent is greater than its corresponding interim groundwater limit, the final groundwater limit will be the background concentration.

12. Because of the high salinity of the effluent and the potential for groundwater pollution due to salinity, the WDRs also limit the salinity of the discharge. The interim effluent salinity limitations were intended only to ensure that the salinity of the treated effluent did not increase above then-current levels. The final effluent limitations were intended to protect all beneficial uses of groundwater. At the time the WDRs were adopted, both the Discharger and Regional Water Board staff believed that the Discharger would be able to comply with the final effluent limitations through implementation of best practicable treatment and control and blending of the effluent with water from Cache Creek. The effluent limitations state, in part:

C. Effluent Limitations

2. Effective immediately, reclaimed water discharged to the golf course irrigation system shall not exceed the following interim effluent limits for salinity:

Constituent	*Effluent Concentration Limit (30-Day Flow-weighted Average)*
Total dissolved solids (mg/L)	*1,300*
Chloride (mg/L)	*450*
Sodium (mg/L)	*350*

3. Effective 30 June 2008, the combination of fresh water and reclaimed water discharged to the golf course irrigation system shall not exceed the following effluent limits for salinity or the background groundwater concentration (whichever is higher) unless the Discharge demonstrates that higher limits will ensure compliance with Resolution No. 68-16:

Constituent	*Effluent Concentration Limit (30-Day Flow-weighted Average)*
Total dissolved solids (mg/L)	*650*
Chloride (mg/L)	*106*
Sodium (mg/L)	*69*

13. Provision G.2 of the WDRs requires that Discharger submit an *Antidegradation Policy Compliance Report* at the request of the Executive Officer if the results of the *Background Groundwater Quality Repor*t, or any subsequent technical or monitoring report, show that the discharge of reclaimed water has caused, or is likely to cause, exceedance of any applicable water quality limit outside the boundary of trust land. The *Antidegradation Policy Compliance Report* must propose a detailed plan and schedule for achieving full

compliance with the Antidegradation Policy. However, as noted above, the *Background Groundwater Quality Repor*t is not due until June 2009.

14. On 20 March 2008, the Discharger requested that the final effluent salinity limits be relaxed for the following reasons:

    a. In order to comply with the interim effluent salinity limits, the Discharger has been transporting backwash brine from the water softening system to the East Bay Municipal Utility District's Oakland WWTF since shortly after adoption of the WDRs. This practice has reduced the effluent sodium and chloride concentrations to approximately 315 mg/L and 300 mg/L, respectively.

    b. The Discharger has determined that the discharge could not comply with the final effluent salinity limits without significant blending with Cache Creek water. However, blending has been unreliable due to periodic high sodium concentrations in the creek.

    c. As discussed in detail below, the Discharger plans improvements that will significantly reduce the salinity of the effluent. However, those improvements cannot be completed in time to comply with the 30 June 2008 deadline.

15. In order to further control salinity in the discharge, the Discharger has committed to switch from the ion exchange water softening system to a new system that combines electrodialysis reversal (EDR) and vibratory shear enhanced process (VSEP) reverse osmosis. All brine from the new system will be transported off-site for disposal. The system's capital cost is approximately $9 million, and the Discharger expects that it will be operational by October 2008. The following table summarizes the projected effluent salinity after implementation of the new water softening system.

	Effluent Concentration			Final Effluent Limit [1]
Constituent	Pre-WDRs (2006)	Current (2008)	Projected Post-EDR	(6/30/2008)
Total Dissolved Solids (mg/L)	1,230	1,180	510	650
Sodium (mg/L)	430	315	140	106
Chloride (mg/L)	440	300	85	69

[1] Applies to the blend of effluent with supplemental water from Cache Creek.

16. As illustrated above, the Discharger may not be able to comply with the final effluent salinity limits after completion of the EDR/VSEP water softening system. Although the EDR/VSEP system is expected to be fully operational by October 2008, it may take several months to optimize system performance and assess the level of salinity reduction that it can consistently achieve. Furthermore, it is appropriate to consider background groundwater quality in establishing final effluent limits, but there is currently not sufficient data to complete an appropriate statistical determination of background ground water quality.

17. Therefore it is appropriate to amend WDRs Order, No. R5-2006-0121 to allow additional time to comply with the effluent limits for salinity, and to provide a mechanism to allow relaxation of those limits if appropriate based on the performance of the new water treatment system and background groundwater quality.

18. The action to amend WDRs Order No. R5-2006-0121 is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code section 21000, et seq.) because it involves no expansion of the project (14 California Code of Regulations (CCR) section 15301); it is an action taken by a regulatory agency to assure the protection of the environment; and the regulatory process involves procedures for protection of the environment (14 CCR section 15308).

19. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to amend waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

20. The Regional Water Board, in a public meeting, heard, and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Order No. R5-2006-0121 is amended solely to change the Effluent Limitations and Provision G.13. Pursuant to Sections 13263 and 13267 of the California Water Code, the Rumsey Band of Wintun Indians, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted there under, shall comply with amended Order No. R5-2006-0037 as follows:

1. The Effluent Limitations of WDRs Order No. R5-2006-0121 shall be amended as follows:

   C. Effluent Limitations

   3. Effective 30 July 2010, the combination of fresh water and reclaimed water discharged to the golf course irrigation system shall not exceed the following effluent limits for salinity or the background groundwater concentration (whichever is higher) unless the Discharge demonstrates that higher limits will ensure compliance with Resolution No. 68-16:

Constituent	*Effluent Concentration Limit (30-Day Flow-weighted Average)*
Total dissolved solids (mg/L)	*650*
Chloride (mg/L)	*106*
Sodium (mg/L)	*69*

2. The Provisions of WDRs Order No. R5-2006-0121 shall be amended as follows:

G. Provisions

13. Following approval of the Background Groundwater Quality Report required pursuant to Provision G.1.e, the Regional Water Board will review this Order to establish appropriate site-specific effluent limits for salinity.

This Order is effective as of the date of adoption.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 31 July 2008.

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PAMELA C. CREEDON, Executive Officer

ALO: 8/7/08